

## **ABSTRACT**

This invention pertains to methods of [ $^{11}\text{C}$ ]-radiolabelling "phenothiazine" and "phenothiazine-like" compounds, which have a pendant group (which is a primary amino group; a cationic primary imino group; a secondary amino group; a cationic secondary imino group; a primary imino group; or a secondary imino group), by reaction with [ $^{11}\text{C}$ ]methyl trifluoromethanesulfonate ( $\text{CF}_3\text{SO}_2\text{O}^{11}\text{CH}_3$ ), also known as [ $^{11}\text{C}$ ]methyl triflate. This reaction converts the pendant group into a [ $^{11}\text{C}$ ]methyl-labelled pendant group. The resulting [ $^{11}\text{C}$ ]-radiolabelling product is useful, for example, as an in vivo positron emission tomography (PET) tracer, for example, for patients suffering from melanoma, the most serious form of skin cancer, and tauopathy (e.g., Alzheimer's disease). The present invention also pertains to the resulting [ $^{11}\text{C}$ ]-radiolabelling products, compositions comprising them, their use in methods of (e.g., PET) imaging, their use in methods of medical treatment and diagnosis, etc.